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Title

Evaluating NMME seasonal forecast skill for use in NASA SERVIR hub regions

Abstract

The U.S. National Multi-Model Ensemble seasonal forecasting system is providing hindcast and real-time data streams to be used in assessing and improving seasonal predictive capacity. The coupled forecasts have numerous potential applications, both national and international in scope. The NASA / USAID SERVIR project, which leverages satellite and modeling-based resources for environmental decision making in developing nations, is focusing on the evaluation of NMME forecasts specifically for use in driving applications models in hub regions including East Africa, the Hindu Kush-Himalayan (HKH) region and Mesoamerica. A prerequisite for seasonal forecast use in application modeling (e.g. hydrology, agriculture) is bias correction and skill assessment. Efforts to address systematic biases and multi-model combination in support of NASA SERVIR impact modeling requirements will be highlighted. Specifically, quantile-quantile mapping for bias correction has been implemented for all archived NMME hindcasts. Both deterministic and probabilistic skill estimates for raw, bias-corrected, and multi-model ensemble forecasts as a function of forecast lead will be presented for temperature and precipitation. Complementing this statistical assessment will be case studies of significant events, for example, the ability of the NMME forecasts suite to anticipate the 2010/2011 drought in the Horn of Africa and its relationship to evolving SST patterns.